

ECOLOGY

TARGETED NH FRAMEWORKS FOR SCIENCE LITERACY

S:LS1:6:2.4 Recognize and describe the hierarchical organization of living systems, including cells, tissues, organs, organ systems, whole organisms, and ecosystems.

S:LS2:8:1.3 Using data and observations, predict outcomes when abiotic/biotic factors are changed in an ecosystem. [LS2(5-8)INQ+SAE-5]

S:LS2:8:2.2 Given a scenario, trace the flow of energy through an ecosystem, beginning with the sun, through organisms in the food web, including decomposers, and into the environment (includes photosynthesis and respiration).[LS2(5-8) SAE-6]

CHILD-FRIENDLY ESSENTIAL STANDARD(S)

I am able to make sense of the structure of living systems from the smallest cells, to tissues, organs, organ systems, whole organisms, and even ecosystems.

I am able to consider how changes to biotic and abiotic factors of an ecosystem affect the plants and animals.

I am able to analyze how a food web is more than plants and animals, that it is the flow of energy through the system in a continuous cycle.

PRIOR KNOWLEDGE (Presented in previous grade levels)

- In 3rd grade, students
 - Producer, Consumer, Decomposer
 - Different types of Animal adaptations
 - (No connection to factors)
 - Concept of biomes, predators, prey, habitat, adapt
 - Understand that humans are part of a food
 - All organisms in a habitat affect another
- In 4TH grade, students
 - Photosynthesis
- In 5TH grade, students:
 - Energy in system is discussed
 - Living and non-living factors
 - Abiotic and biotic vocab introduced
 - Plants are important

- How estuaries impact the environment (7 reasons)
- Habitats
- Introduce vocabulary for the food chain of the estuary

ESSENTIAL UNDERSTANDING(S)

All living organisms have characteristics, which change over time because of environmental factors, that enable them to survive.

Energy moves throughout living systems.

The health of a system is affected by the health of its individual components

CONTENT/SKILLS DEVELOPED IN GRADE 6

- 1) Students will compare and contrast organisms
- 2) Students will demonstrate that abiotic and biotic factors are the causes for adaptations
- 3) Students will understand the following levels of food chains
 - a. Producer
 - b. Primary Consumer
 - c. Secondary Consumer
 - d. Tertiary Consumer (Including scavengers)
 - e. Decomposer
- 4) Students will evaluate the fact that the amount of energy needed to sustain organism's increases as you move up the food chain.
- 5) Students will explain that multiple food chains make up a food web
- 6) Students will understand that adaptations occur over generations and do not occur within a single organism
- 7) Students will understand that food chains move energy from one level to another.

VOCABULARY

Prior Knowledge

Photosynthesis (Sun, Co₂, Water)

Mastered

Biotic factors
 Abiotic factors
 Adaptation
 Food Chain vs. Food Web
 Producers
 Primary Consumers
 Secondary Consumers
 Tertiary Consumers
 Scavengers
 Decomposers

